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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,355	03/06/2002	Paul Kleinberger	02/23506	2866

7590 01/30/2006

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EXAMINER

FINEMAN, LEE A

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

JK

<b>Office Action Summary</b>	Application No.		Applicant(s)	
	10/070,355		KLEINBERGER ET AL.	
	Examiner		Art Unit	
	Lee Fineman		2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16,25-28,30-33,36 and 56-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16,25-28,30-33,36 and 56-69 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/6/02 & 9/16/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 May 2005 has been entered, in which claims 16 and 25 were amended and claims 1-15, 17-24, 29, 34-35 and 37-55 were cancelled. Claims 16, 25-28, 30-33, 36 and 56-69 are pending.

### ***Specification***

2. The disclosure is objected to because of the following informalities: On page 54, line 17, "Combined Intentions image CI" should be --Combined Intensities image CI--.

Appropriate correction is required.

### ***Claim Objections***

3. Claims 59-62 are objected to because of the following informalities: Claims 59-62 are dependent upon cancelled claim 37. For the purposes of examination, Claim 59 will be taken to be an independent claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 16, 32-33, 36, 56-63 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how the birefringent layer can manipulate a uniformly polarized combined image by rotating both the left image and right image differently (or one and not the other) to provide two separate images **superimposed** on the same spot (pixel). All the uniformly polarized light that passes through any specific spot (pixel) on the birefringent layer must react in the same way. Therefore it is unclear how it can provide two separate images **superimposed** on the same spot (pixel). It is further noted that these claims are incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a computational means for calculating intensities of left and right images. For the purposes of examination, it is assumed that the uniformly polarized combined image light is all rotated to some resultant polarization and that the left and right images are configured from the ordinary and extraordinary components of that beam.

The dependent claims inherit the deficiencies of the claims from which they depend.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 32 and 59-63 are rejected under 35 U.S.C. 102(b) as being anticipated by DuBois, WO 98/25414.

DuBois discloses in fig. 1 a first optical construction which comprises (i) a display (12 and 16) for displaying a uniformly polarized combined image ( $M_{xy}$ ) of left ( $L_{xy}$ ) and right ( $R_{xy}$ ) image picture elements of left and right images; and (ii) a birefringent layer (17/70, see fig. 7 and column 8, lines 52-56) having individually switchable elements (column 5, lines 58-63 and column 8, lines 52-65) being positioned in front of said display (fig. 1) and serving for re-dividing said uniformly polarized combined image by controlled partial light rotation (column 6, lines 10-12 and column 9, lines 24-39), thereby constructing an image (30) having superimposed left and right image picture elements of left and right images, respectively, in which superimposed light of said left image is polarized differently from superimposed light of said right image (column 5, line 64-column 6, line 9 and column 9, lines 24-39); light of said left image displayed in adjacent picture elements is polarized differently and light of said right image displayed in adjacent picture elements is polarized differently (each pixel 70 rotates independently so any combination including differently polarized by adjacent left and right images); operable to present an image wherein light of said left image is polarized uniformly and the light of said right image is polarized uniformly (30, fig. 1); wherein said display is pixilated (12, fig. 1) wherein said individually switchable elements are each optically aligned with a respective pixel of said display (17, fig. 1), and wherein each of said individually switchable

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elements is controlled to vary the polarization of output light from a display pixel with which it is optically aligned (column 8, lines 52-56).

*Claim Rejections - 35 USC § 103*

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 16, 25-28, 33, 36, 56-58 and 64-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over DuBois in view of Kleinberger et al., US 5,822,117.

Regarding claims 33 and 56-58, DuBois discloses the claimed invention except for a second configurable optical construction, which is a birefringent layer having individually switchable elements, designed and constructed to be positioned between said first optical construction and a viewer and closer to said first optical construction than the viewer, said second optical construction when so positioned enabling a left eye of the viewer to see left imagery data presented by said first optical construction and a right eye of the viewer to see right imagery data presented by said first optical construction while substantially prevent each of the right and left eyes of the viewer from seeing light from an inappropriate image; wherein the second optical construction comprises a plurality of polarizing strips, each strip having a polarization orientation orthogonal to that of the strips to which it is adjacent; wherein said individually switchable elements of the second optical construct are each optically aligned with a respective pixel of said display; and a uniform polarizer. Kleinberger et al. teach an

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autostereoscopic system in fig. 18 with a birefringent layer (111 or 112) with individually switchable elements and a uniform polarizer (110 or 113) so positioned to enable a left eye of the viewer to see left imagery data presented by said first optical construction and a right eye of the viewer to see right imagery data presented by said first optical construction while substantially prevent each of the right and left eyes of the viewer from seeing light from an inappropriate image (column 35, line 25-column 36, line 29); wherein the second optical construction comprises a plurality of polarizing strips, each strip having a polarization orientation orthogonal to that of the strips to which it is adjacent (fig. 18); wherein said individually switchable elements of the second optical construct are each optically aligned with a respective pixel of said display (1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the birefringent layers with individually switchable elements and a uniform polarizer of Kleinberger et al. to the system of DuBois to provide more convenience to the viewer by providing more flexibility of movement (Kleinberger, column 36, lines 30-39).

Regarding claims 16, 25, 31, 36, 64-65 and 69, DuBois in view of Kleinberger et al. as set forth above disclose the claimed invention except for an eye-tracking sensor/module for providing information pertaining to positions of the left and the right eyes of the viewer; and a control element operable to receive said eye-position information from said eye-tracking sensor/module, to calculate appropriate configurations of said second optical construction based on said received eye-position information, and to issue successive configuration commands to said second optical construction, thereby commanding configurations of said second optical construction, which configurations enable a left eye of the viewer to continuously see left imagery data presented by said first optical construction and a right eye of the viewer to

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continuously see right imagery data presented by said first optical construction, and substantially prevent said left eye from seeing right imagery data and substantially prevent said right eye from seeing left imagery data, while the viewer changes position with respect to said first and second optical constructions; wherein said control element is further operable to communicate with said first optical construct; wherein said control element is operable to command size and position of picture elements presented by said first optical construct; and wherein said display includes a rear and remote light source producing homogenous light rays. Kleinberger et al. further teach in fig. 23 a system with an eye-tracking sensor/module (180) for providing information pertaining to positions of the left and the right eyes of the viewer (column 38, lines 34-46); and a control element operable (182) to receive said eye-position information from said eye-tracking sensor/module, to calculate appropriate configurations of said second optical construction (part of 183) based on said received eye-position information, and to issue successive configuration commands to said second optical construction, thereby commanding configurations of said second optical construction, which configurations enable a left eye of the viewer to continuously see left imagery data presented by said first optical construction and a right eye of the viewer to continuously see right imagery data presented by said first optical construction, and substantially prevent said left eye from seeing right imagery data and substantially prevent said right eye from seeing left imagery data, while the viewer changes position with respect to said first and second optical constructions (column 38, lines 9-19 and column 39, lines 17-35); wherein said control element is further operable to communicate with said first optical construct (also part of 183); and wherein said control element is operable to command size and position of picture elements presented by said first optical construct (column 38, lines 15-19). It would have been obvious to



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one of ordinary skill in the art at the time the invention was made to add the eye-tracking sensor and control element to the system of DuBois in view of Kleinberger et al. to provide a more adaptable system in which the viewer is allowed movement while still providing a stereoscopic match. Regarding claims 31 and 36, Official Notice is taken that a rear and remote light source producing homogenous light rays is very well known in the stereoscopic arts to provide back light to a display. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a display with a rear and remote light source producing homogenous light rays as it is a commonly available and easy to obtain type of display.

Regarding claims 26-28, DuBois further discloses wherein said controlled partial light rotation is effected by controlled degree of light rotation, controlled time periods of light rotation or both (column 9, lines 23-39, column 10, lines 11-21 and fig. 8).

Regarding claims 66-68, DuBois in view of Kleinberger et al., as applied to claim 65 above, further comprises wherein a first uniformly polarizing layer (16) is positioned between said light source (12), which is a first pixilated liquid crystal panel (column 4, lines 66-67) and said birefringent layer/optical construction (17), which is a second pixilated liquid crystal panel (17/70) and a second uniformly polarizing (110 from Kleinberger with other birefringent layer) positioned between said light source and said second birefringent layer/optical construction.

10. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over DuBois in view of Kleinberger et al., as applied to claim 25 above, and further in view of Omar et al., US 6,449,090 B1.

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DuBois in view of Kleinberger et al., as applied to claim 25 above discloses the claimed invention except for further comprising a lens element for focusing light from said display onto said birefringent layer. Focusing lenses are well known in the art for providing light to a display and for focusing light respectively. For example, Omar et al. teach in fig. 5 a lens element (4 or 5) for focusing light. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a well known lens element in the system for better focus/control of the light from the display to the birefringent layer.

### *Response to Arguments*

11. Applicant's arguments with respect to claims 16, 25-28, 30-33, 36 and 56-69 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAF

August 11, 2005



**DREW A. DUNN**  
**SUPERVISORY PATENT EXAMINER**